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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,600	09/26/2003	Hisao Kato	07057.0053	9894

7590 03/03/2005

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Washington, DC 20005-3315

EXAMINER

HAILEY, PATRICIA L

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/670,600

Applicant(s)

KATO, HISAO

Examiner

Patricia L. Hailey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Applicants' remarks and amendments, filed on December 10, 2004, have been carefully considered. Claim 2 has been canceled, and new claims 9-11 have been added.

Claims 1 and 3-11 remain pending in this application.

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Applicants' Priority Document was filed on September 26, 2003.

***Maintained Rejections***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 102***

3. ***Claims 1 and 3-6 stand rejected under 35 U.S.C. 102(b) as being anticipated by Auer et al. (U. S. Patent No. 6,066,410).***

Auer et al. teach a platinum/ruthenium alloy catalyst that includes finely dispersed alloy particles on a powdery electrically conductive carrier material (Abstract; col. 1, lines 6-10 of Auer et al.).

The catalyst is prepared by applying the alloy particles to the carrier in highly dispersed form, e.g., precipitation via impregnation with the aid of preformed surfactant-stabilized platinum/ruthenium alloy colloids at a temperature maintained between 20 and 110°C, followed by washing with appropriate solvents (which are removed by filtration or distillation), and removal of the stabilizing surfactant via calcination, thereby simultaneously activating the catalyst. Calcination is performed at temperatures between 200 and 400°C under inert gas. See col. 4, line 18 to col. 5, line 29 of Auer et al., especially col. 5, lines 18-29.

The catalyst of Auer et al. can be used to prepare various components of fuel cells, such as gas diffusion electrodes. See col. 5, lines 30-58 of Auer et al.

Auer et al. is silent with respect to any oxygen being present in Patentees' catalyst. Because Applicants' claims recite oxygen contents of, for example, "4.4 wt. % or less", the catalyst of Auer et al. is considered to inherently read upon these claim limitations, since the limitation "or less" is considered to include zero (0) percent. Further, because the preparation of the catalyst of Auer et al. as discussed above involves maintaining the platinum/ruthenium alloy colloids at a temperature between 20 and 110°C, as well as calcining the catalyst under inert gas at temperatures between 200 and 400°C, Applicants' claimed "oxygen content regulating step" and "supporting step" as recited in claims 3-6 are considered inherently taught by Auer et al.

In view of these teachings, Auer et al. anticipate claims 1 and 3-6.

4. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

The following maintained rejection includes the incorporation therein of new claims 9-11, all of which depend from claim 1.

***Claim Rejections - 35 USC § 103***

5. ***Claims 1 and 3-8 stand, and new claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (U. S. Patent No. 6,649,300).***

Ito et al. teach an electrode catalyst for fuel cells, said catalyst comprising a conductive carbon, platinum supported on the conductive carbon, and oxygen bonded chemically to the conductive carbon. The oxygen is present in an amount corresponding to an atomic ratio of oxygen:platinum of 0.7 to 3. See col. 3, lines 21-27 of Ito et al.

The electrode catalyst is obtained by adding a solution of platinum compounds to a slurry containing a conductive carbon, allowing the platinum compounds to react with a reagent to form fine colloidal particles of hydroxoplatinate, and allowing the colloidal particles to deposit on the conductive carbon surface, and wet-reducing the hydroxoplatinate in the slurry by the use of a

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reducing agent. After the reduction has completed, the slurry may be filtered, washed, and dried by conventional methods. See col. 5, line 5 to col. 6, line 8 of Ito et al.

The platinum present in the electrode catalyst may also be alloyed with “counterpart metal component” metals such as ruthenium to produce a supported platinum alloy electrode catalyst. See col. 6, lines 29-34 and lines 57-59 of Ito et al.

The supported platinum alloy electrode catalyst is produced by forming a precursor comprising the platinum supported on the conductive carbon, as discussed above, followed by supporting thereon the “counterpart metal component”, followed by reduction treatment to alloy the platinum and counterpart metal component, said reduction effected by making heat treatment in a reducing atmosphere or in an inert gas, usually under temperatures from 200 to 1000°C. See col. 7, lines 1-25 of Ito et al. This disclosure is considered to read upon Applicants’ claimed method steps as recited in claims 3-8.

The platinum alloy formed after the alloying can be made to have a crystallite diameter of 60 angstroms or smaller, to provide a supported platinum alloy electrode catalyst having a high activity. See col. 6, lines 51-56 of Ito et al., as well as col. 4, lines 20-45, where Ito et al. disclose that the platinum may have a crystallite diameter of, e.g., 35 angstroms or smaller.

The supported platinum alloy electrode catalyst can be used in fuel cells. See col. 7, lines 26-31 of Ito et al.

Tables 1 and 2 of Ito et al. depict exemplary and comparative catalysts, having oxygen contents reading upon Applicants' claimed ranges of "4.4 wt.% or less" and "14.1 % or less".

Although Ito et al. do not provide any specific examples of a platinum/ruthenium alloy, it would have been obvious to one skilled in the art to employ ruthenium as a "counterpart metal component" in producing Patentees' supported platinum alloy electrode catalyst, as, disclosed by Ito et al. at col. 6, lines 38-63, and, in doing so, obtaining a platinum alloy reducing catalyst reading upon Applicants' claims in their present form.

### ***Response to Arguments***

In response to Applicants' arguments that Auer et al. do not disclose either the claimed oxygen content in the catalyst layer or the claimed oxygen content regulating and supporting steps, it is the Examiner's position that, because Applicants' claims recite a oxygen content of "4.4 wt.% or less", this limitation includes zero (0) percent, which is construed to be the oxygen content of the alloy catalyst of Auer et al. Further, because neither of Applicants' claimed oxygen content regulating step and supporting step have any temperature limitations, ranges, or parameters (as opposed to the temperature ranges "as disclosed in the specification", as Applicants argue), Auer et al.'s calcining in an inert gas at a

specific temperature range is considered to read upon both the regulating and supporting steps recited in the instant claims (e.g., Applicants' claim 6).

Despite Applicants' "disclosing" of temperature ranges for the oxygen content regulating step and for the supporting step, these temperature ranges are not recited in the instant claims. It is the claims that define the claimed invention, and it is claims, not specifications, that are anticipated or unpatentable. Constant v. Advanced Micro-Devices, Inc., 7 U.S.P.Q. 2d 1064.

With respect to Applicants' arguments regarding the Ito et al. reference, it is considered that even though the oxygen content disclosed in Ito et al. refers only to the surface of the catalyst layer (since Ito et al. teach that oxygen is chemically bonded to the surface of the catalyst layer), said oxygen content continues to read upon that recited in Applicants' claims, in view of Applicants' claim limitation of "an oxygen content in an entirety of **at least one particle**" (emphasis added). Such a limitation is not limited to only one particle in the catalyst layer. If all the particles in Applicants' catalyst layer were encompassed by this limitation (or all the particles at the outermost surface of the catalyst layer, for that matter), then the oxygen content of the catalyst layer in its entirety would be 4.4 wt. % or less. It is with this interpretation that Ito et al. is considered to read upon Applicants' claims.

Further, Applicants argue that Ito et al. do not teach an oxygen reducing step subsequent to a heat treatment. Ito et al. at col. 7, lines 1-25 disclose the production of Patentees' platinum alloy electrode catalyst, wherein the alloy is



supported on the conductive carbon, followed by a reduction treatment that is effected by heat treatment in a reducing atmosphere defined as an inert gas at temperatures ranging from 200 to 1000°C. The inert gas atmosphere is considered to read upon the “oxygen reducing step” (as it is well known that reduction in an inert atmosphere removes any oxygen present), as well as the claimed “heating step”/“supporting step”, in view of what Applicants’ “disclose” in their arguments as the “supporting step” (i.e., heat treatment at approximately 300°C to 800°C).

For these reasons, Applicants’ arguments are not persuasive.

### *Conclusion*

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

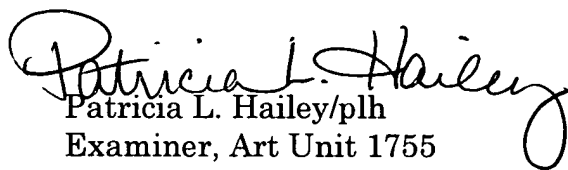
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

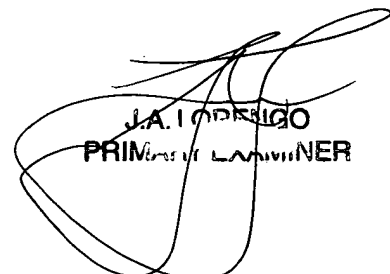
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233 on Mondays through Fridays, from 9:45 until 6:15. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Patricia L. Hailey/plh  
Examiner, Art Unit 1755  
February 24, 2005

  
J.A. LORENZO  
PRIMARY EXAMINER